

departure, or place the locomotive in trailing position, in switching service as set forth in paragraph (b)(1)(ii) of this section, or in transfer service as set forth in paragraph (b)(1)(iii) of this section. If the railroad determines during the daily inspection required by § 229.21 that the modesty lock required by paragraph (a)(2)(ii) of this section is defective, the modesty lock shall be repaired pursuant to the requirements of § 229.139(e).

(i) *Equipped units; retention and maintenance.* Except where a railroad downgrades a locomotive to service in which it will never be occupied, where a locomotive is equipped with a toilet facility as of [the effective date of the final rule], the railroad shall retain and maintain the toilet facility in the locomotive consistent with the requirements of this part, including locomotives used in switching service pursuant to paragraph (b)(1)(ii) of this section, and in transfer service pursuant to paragraph (b)(1)(iii) of this section.

(j) *Newly manufactured units; in-cab facilities.* All locomotives manufactured after June 3, 2002, except switching units built exclusively for switching service and locomotives built exclusively for commuter service, shall be equipped with a sanitation compartment accessible to cab employees without exiting to the out-of-doors for use. No railroad may use a locomotive built after June 3, 2002, that does not comply with this subsection.

(k) *Potable water.* The railroad shall utilize potable water where the washing system includes the use of water.

[67 16050, Apr. 4, 2002, as amended at 71 FR 61857, Oct. 19, 2006]

§ 229.139 Sanitation, servicing requirements.

(a) The sanitation compartment of each lead locomotive in use shall be sanitary.

(b) All components required by § 229.137(a) for the lead locomotive in use shall be present consistent with the requirements of this part, and shall operate as intended such that:

(1) All mechanical systems shall function;

(2) Water shall be present in sufficient quantity to permit flushing;

(3) For those systems that utilize chemicals for treatment, the chemical (chlorine or other comparable oxidizing agent) used to treat waste must be present; and

(4) No blockage is present that prevents waste from evacuating the bowl.

(c) The sanitation compartment of each occupied locomotive used in switching service pursuant to § 229.137(b)(1)(ii), in transfer service pursuant to § 229.137(b)(1)(iii), or in a trailing position when the locomotive is occupied, shall be sanitary.

(d) Where the railroad uses a locomotive pursuant to § 229.137(e) in switching or transfer service with a defective toilet facility, such use shall not exceed 10 calendar days from the date on which the defective toilet facility became defective. The date on which the toilet facility becomes defective shall be entered on the daily inspection report.

(e) Where it is determined that the modesty lock required by § 229.137(a)(2) is defective, the railroad shall repair the modesty lock on or before the next 92-day inspection required by this part.

[67 16050, Apr. 4, 2002]

Subpart D—Locomotive Crashworthiness Design Requirements

§ 229.141 Body structure, MU locomotives.

(a) MU locomotives built new after April 1, 1956 that are operated in trains having a total empty weight of 600,000 pounds or more shall have a body structure designed to meet or exceed the following minimum specifications:

(1) The body structure shall resist a minimum static end load of 800,000 pounds at the rear draft stops ahead of the bolster on the center line of draft, without developing any permanent deformation in any member of the body structure.

(2) An anti-climbing arrangement shall be applied at each end that is designed so that coupled MU locomotives under full compression shall mate in a manner that will resist one locomotive from climbing the other. This arrangement shall resist a vertical load of 100,000 pounds without exceeding the

yield point of its various parts or its attachments to the body structure.

(3) The coupler carrier and its connections to the body structure shall be designed to resist a vertical downward thrust from the coupler shank of 100,000 pounds for any horizontal position of the coupler, without exceeding the yield points of the materials used. When yielding type of coupler carrier is used, an auxiliary arrangement shall be provided that complies with these requirements.

(4) The outside end of each locomotive shall be provided with two main vertical members, one at each side of the diaphragm opening; each main member shall have an ultimate shear value of not less than 300,000 pounds at a point even with the top of the underframe member to which it is attached. The attachment of these members at bottom shall be sufficient to develop their full shear value. If reinforcement is used to provide the shear value, the reinforcement shall have full value for a distance of 18 inches up from the underframe connection and then taper to a point approximately 30 inches above the underframe connection.

(5) The strength of the means of locking the truck to the body shall be at least the equivalent of an ultimate shear value of 250,000 pounds.

(6) On or after November 8, 1999, paragraph (a)(1) of this section does not apply to "passenger equipment" as defined in § 238.5 of this chapter, unless such equipment is excluded from the requirements of §§ 238.203 through 238.219, and § 238.223 of this chapter by operation of § 238.201(a)(2) of this chapter. Paragraphs (a)(2) through (a)(4) of this section do not apply to "passenger equipment" as defined in § 238.5 of this chapter that is placed in service for the first time on or after September 8, 2000, unless such equipment is excluded from the requirements of §§ 238.203 through 238.219, and § 238.223 of this chapter by operation of § 238.201(a)(2) of this chapter.

(b) MU locomotives built new after April 1, 1956 that are operated in trains having a total empty weight of less than 600,000 pounds shall have a body structure designed to meet or exceed the following minimum specifications:

(1) The body structure shall resist a minimum static end load of 400,000 pounds at the rear draft stops ahead of the bolster on the center line of draft, without developing any permanent deformation in any member of the body structure.

(2) An anti-climbing arrangement shall be applied at each end that is designed so that coupled locomotives under full compression shall mate in a manner that will resist one locomotive from climbing the other. This arrangement shall resist a vertical load of 75,000 pounds without exceeding the yield point of its various parts or its attachments to the body structure.

(3) The coupler carrier and its connections to the body structure shall be designed to resist a vertical downward thrust from the coupled shank of 75,000 pounds for any horizontal position of the coupler, without exceeding the yield points of the materials used. When a yielding type of coupler carrier is used, an auxiliary arrangement shall be provided that complies with these requirements.

(4) The outside end of each MU locomotive shall be provided with two main vertical members, one at each side of the diaphragm opening; each main member shall have an ultimate shear value of not less than 200,000 pounds at a point even with the top of the underframe member to which it is attached. The attachment of these members at bottom shall be sufficient to develop their full shear value, the reinforcement shall have full value for a distance of 18 inches up from the underframe connection and then taper to a point approximately 30 inches above the underframe connection.

(5) The strength of the means of locking the truck to the body shall be at least the equivalent of an ultimate shear value of 250,000 pounds.

(6) On or after November 8, 1999, paragraph (a)(1) of this section does not apply to "passenger equipment" as defined in § 238.5 of this chapter, unless such equipment is excluded from the requirements of §§ 238.203 through 238.219, and § 238.223 of this chapter by operation of § 238.201(a)(2) of this chapter. Paragraphs (a)(2) through (a)(4) of this section do not apply to "passenger equipment" as defined in § 238.5 of this

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chapter that is placed in service for the first time on or after September 8, 2000, unless such equipment is excluded from the requirements of §§ 238.203 through 238.219, and § 238.223 of this chapter by operation of § 238.201(a)(2) of this chapter.

[45 FR 21109, Mar. 31, 1980, as amended at 71 FR 36912, June 28, 2006]

§ 229.201 Purpose and scope.

(a) *Purpose.* The purpose of this subpart is to help protect locomotive cab occupants in the event that a locomotive collides with another locomotive or piece of on-track equipment, a shifted load on a freight car on an adjacent parallel track, or a highway vehicle at a highway-rail grade crossing.

(b) This subpart prescribes minimum crashworthiness standards for locomotives. It also establishes the requirements for obtaining FRA approval of: new locomotive crashworthiness design standards; changes to FRA-approved locomotive crashworthiness design standards; and alternative locomotive crashworthiness designs.

[71 FR 36912, June 28, 2006]

§ 229.203 Applicability.

(a) Except as provided in paragraphs (b) and (c) of this section, this subpart applies to all locomotives manufactured or remanufactured on or after January 1, 2009.

(b) *Cab cars and power cars.* The requirements of this subpart do not apply to cab control cars, MU locomotives, DMU locomotives, and semi-permanently coupled power cars that are subject to the design requirements for such locomotives set forth in part 238 of this chapter.

(c) *Locomotives used in designated service.* Locomotives used in designated service are exempt from the requirements of this subpart, with the exception of § 229.233 (minimum requirements for fuel tank design), which remains applicable to such locomotives.

[71 FR 36912, June 28, 2006]

§ 229.205 General requirements.

(a) Each wide-nose locomotive used in occupied service must meet the minimum crashworthiness performance requirements set forth in Appendix E of

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this part. Compliance with those performance criteria must be established by:

(1) Meeting an FRA-approved crashworthiness design standard (including AAR S-580, Locomotive Crashworthiness Requirements). The Director of the Federal Register approves incorporation by reference of the AAR S-580 (revised July 2005), “Locomotive Crashworthiness Requirements,” in this section in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain a copy of the incorporated standard from the Association of American Railroads, 50 F Street NW, Washington, DC 20001. You may inspect a copy of the incorporated standard at the Federal Railroad Administration, Docket Clerk, 1200 New Jersey Avenue, SE., Washington, DC 20590 or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html;

(2) Meeting new design standards and changes to existing design standards approved by FRA pursuant to § 229.207; or

(3) Meeting an alternative crashworthiness design approved by FRA pursuant to § 229.209.

(b) A monocoque or semi-monocoque design locomotive must be designed in accordance with the provisions of AAR S-580, applicable to those types of locomotives, in accordance with §§ 238.405(a), 238.409 and 238.411 of this chapter, or in accordance with a standard or design approved by FRA as providing at least equivalent safety.

(c) A narrow-nose locomotive must be designed in accordance with the provisions of AAR S-580, applicable to that type of locomotive (notwithstanding any limitation of scope contained in that standard) or in accordance with a standard or design approved by FRA as providing at least equivalent safety.

[71 FR 36912, June 28, 2006, as amended at 74 FR 25173, May 27, 2009]

§ 229.206 Design requirements.

Each locomotive used in occupied service must meet the minimum anti-